7.0 MEASURES TO MITIGATE IMPACTS

The goal of mitigative measures is to preserve, to the greatest extent possible, existing neighborhoods, land use, and resources, while improving transportation. Although some adverse impacts are unavoidable, the Michigan Department of Transportation (MDOT), through route location and design and environmental and construction processes, takes precautions to protect as many social and environmental systems as possible. Construction activities that include the mitigation measures below are those currently contained in *Standard Specifications for Construction* (MDOT 1996).

The following sections address the mitigation measures that are being considered. These measures are based on the best information available through March 2000. Without the benefit of detailed design plans and data, tentative mitigation ideas are proposed as a means to avoid or reduce adverse impacts to identified resources. Further agency coordination will continue through the design phase. Design plans will be reviewed by MDOT personnel prior to construction to incorporate appropriate social, economic, or environmental protection items. Construction sites will be reviewed to ensure that the mitigation measures proposed are implemented and to determine if additional protection is required. Appropriate mitigation measures may be developed if other impacts are identified. Specific mitigation measures will be included on the design plans and permit applications.

7.1 Minimization of Relocation Impacts Resulting from Right-of-Way Acquisition

Actions to minimize relocation impacts will be in compliance with
Act 31 of Michigan P.A. of 1970
Act 227 of Michigan P.A. of 1972
The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended

Fair market value: All land and improvements within the right-of-way will be acquired at a fair market value established by qualified fee or staff appraisers. Fair market value is defined as the highest price estimated, in terms of money, which the property will bring if exposed to sale on the open market with a reasonable time allowed to find a buyer, buying with the knowledge of all the uses to which it is adapted, and for which it is capable of being used.

Relocation advisory assistance: Persons and businesses being relocated will be offered relocation assistance services for the purpose of locating suitable replacement property.

Moving allowances: Payment for the cost of moving personal property from acquired sites will be provided.

Supplemental payments to owners or renters: Funds will be provided to all eligible occupants to ensure that they are relocated in safe, decent, sanitary, and adequate housing within their means.

Assurance clause: Fair and just compensation will be provided for each property within the proposed right-of-way, as required by the constitutions of both the United States and Michigan. Just compensation is defined as a monetary payment equivalent to the "fair market value" of the property.

Where businesses will be displaced, close coordination among MDOT, local governments, and affected businesses will occur. Appropriate measures will be taken to ensure that all businesses are aware of the services and courses of action open to them.

MDOT is required by law to determine the availability of adequate, decent, safe, and sanitary replacement housing in the area before any federally funded project is approved. The MDOT Real Estate Division is responsible for carrying out these measures so that the impacts of relocation can be mitigated to the greatest extent possible. A pamphlet describing the MDOT Relocation Advisory Service can be obtained free of charge by those affect by the project from the MDOT Real Estate Division.

7.2 Environmental Permits

Proposed construction activities may require permits in several areas. Impacts on bodies of water such as lakes, streams, and wetlands may require permits under the following state and federal laws:

7.2.1 State

Act 203 of the 1974 Michigan Endangered Species Act
Air Quality Permit (see Section 7.16)

7.2.2 Federal

Water Quality Act, Section 405, National Pollutant Discharge Elimination System (NPDES) storm water permit under the Clean Water Act of 1972, as amended
Endangered Species Act of 1973

An Act 203 endangered species permit is required from the Wildlife Division of the Michigan Department of Natural Resources (MDNR) for any activity that may impact a state-listed threatened or endangered fish, plant, or animal species.

Section 405 of the Water Quality Act requires a NPDES stormwater discharge permit for construction projects that involve land clearing of 5 acres or greater. Permit application requirements include the name of the receiving water, identification of soil erosion controls to be used during construction, and identification of measures to control pollutants in storm water discharges that occur after construction has been completed. The intent of these requirements is to reduce impacts to water quality during and after construction of the project.

A federal endangered species permit is required from the U.S. Fish and Wildlife Service for any activity that may impact any federally listed threatened or endangered fish, plant, or animal species.

Final mitigation measures proposed for areas requiring the above permits will be developed in consultation with the appropriate agencies and will be included in permit applications.

7.3 Soil Erosion and Sedimentation Control

Accelerated sedimentation caused by highway construction will be controlled before it leaves the highway right-of-way by the placement of temporary or permanent erosion and sedimentation control measures. MDOT has developed a series of standard erosion control measures to include on design plans to prevent erosion and sedimentation. The design plans will describe the erosion controls and their locations. Payment is made to the contractor for construction and maintenance of items used from the standard erosion control measures list or items specifically developed for the project.

MDOT has on file with MDNR an approved operating erosion and sedimentation control program that ensures compliance with Michigan Act 347, the Soil Erosion and Sedimentation Control Act of 1973. MDOT is self-regulated in its efforts to comply with this act. However, MDNR may inspect and enforce soil erosion and sedimentation control practices during construction to ensure that MDOT and the contractor are in compliance with Act 347 and the acceptable erosion and sedimentation control program.

General soil erosion and sedimentation control measures that must be carried out in accordance with permit requirements include the following:

All construction operations will be confined to the right-of-way limits or acquired easements.
Areas disturbed by construction activities will be stabilized and vegetated as soon as possible during the construction period in order to control erosion.
Special attention will be given to protect the natural vegetative growth outside the project's slope stake line from removal or siltation. Natural vegetation, in conjunction with other sedimentation controls, provides filtration of runoff not carried in established ditches.

7.4 Existing Vegetation

Although some tree removal may be necessary, the existing natural and ornamental vegetative cover will be retained wherever possible within the right-of-way. Where the existing groundcover must be removed, replacement vegetation will be established in a timely manner using seed and mulch or sod.

Roadside trees adjacent to residences will be avoided wherever possible. Where trees are to be removed from in front of residences, property owners will be given appropriate notice and will be offered replacement trees to help offset any functional or aesthetic loss of the trees.

MDOT is committed to replace vegetation in coordination with adjacent property owners and the city. Replacement trees will be placed (with the property owner's approval) on adjacent private property as close to the right-of-way line as possible. Property owners would then assume the responsibility for maintaining these trees.

7.5 Threatened and Endangered Species

A review of the potential for threatened and endangered species will be done prior to construction. Protective fencing or other measures will be erected to isolate and protect any threatened or endangered species located adjacent to any construction activities. If the threatened or endangered plant species cannot be protected, individual plants may be transplanted or salvaged as required by the MDNR permit.

An additional survey for the *Morus rubra* will be done. If any are found, mitigation will take place in consultation with MDNR.

7.6 Noise Barriers

Upon completion of final design, a detailed noise evaluation will be conducted. Barriers compliant with MDOT noise policy will be constructed after additional community input. Use of retaining walls with noise absorptive materials will be considered for their potential to reduce noise levels within the corridor.

7.7 Aesthetics

The I-94 roadway and associated bridge structures will be designed to enhance the aesthetic quality of the interstate within the project area. Aesthetic design will be developed in consultation with the city of Detroit and community residents.

7.8 Cultural Resources

Acquired properties that are eligible for or listed on the National Register of Historic Places (NRHP) and that will be demolished or moved will be documented in compliance with standards of the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) and submitted to the State Historic Preservation Officer (SHPO) and the National Park Service. Prior to demolition, the feasibility of moving the structures will be evaluated. Consultation with the SHPO will continue throughout the project process.

7.9 Groundwater Quality

Sealing water wells and sewer lines for the protection of groundwater quality is required of the contractor by MDOT specifications. For houses or other structures in urban situations that are relocated or must be razed, sewer lines will be filled with concrete grout at the basement level and water turned off at the street. Abandoned water wells will be filled in one continuous operation by the application of grout from the bottom upward through a conduit extended to the bottom of the well. The contractor must also meet all local and Michigan Department of Public Health (MDPH) requirements.

Contractors are generally allowed 60 to 90 days following issuance of the demolition contract for the site to be completely cleared. However, only 48 hours is permitted following removal of any structure to fill the foundation to ground level. If the foundation is not filled within this time, MDOT may take independent action to fill the foundation, charging the costs incurred to the contractor. MDNR notification procedures for demolitions will be followed.

The above specifications have been approved by MDPH. The contractor is also referred to the local health department for assistance when special conditions such as flowing wells or wells with a high artesian head are encountered. If high water tables are encountered in cut sections, special methods will be used to reduce any negative effects on the area's groundwater. One such method is to raise the road grade.

Drains will be built as necessary along the pavement to drain the roadway sub-base. Edge drains are used to intercept horizontal seepage. Stone baskets are used to maintain and reroute the flow of springs when found below the roadway. Intercepted water will be discharged into an available roadside ditch or watercourse. Siltation of such watercourses from this intercepted water is rare.

7.10 Surface Water Quality

Adequate soil erosion and sedimentation control measures will be employed for the project during construction. Highway runoff will be diverted into detainment areas prior to release into the storm drain wherever possible. During design, the feasibility of permanent detention areas for roadway runoff will be evaluated.

7.11 Contaminated Properties

Prior to construction, further evaluation of identified potential and known contaminated properties will be conducted. During construction, contaminated excavated material will be disposed of in an environmentally acceptable location. A worker safety plan will be developed as required if construction will take place in a contaminated area.

7.12 Disposal of Surplus or Unsuitable Material

Surplus or unsuitable material generated by construction will be disposed of in accordance with specific provisions designed to control possible detrimental impacts of this material.

Hazardous materials, such as asbestos, removed from buildings to be demolished will be disposed of in accordance with local and federal laws.

If surplus or unsuitable material is to be disposed of outside the right-of-way, the contractor will obtain and file with MDOT written permission from the owner of the property on which the material is to be placed. In addition, no surplus or unsuitable material is to be disposed of in any public or private wetland area, watercourse, or designated floodplain without prior approval and permit issuance by the appropriate resource agencies and the Federal Highway Administration (FHWA).

Inert debris may be used as a basement fill to a depth not less than 2 feet below the ground level if the basement is not within the roadway cross section. Debris used as fill must be covered with at least 2 feet of clean soil to fill voids. Basement walls are to be removed to ground level.

Disposal of solid wastes must comply with all applicable MDNR regulations.

7.13 Maintenance of Traffic Flow During Construction

Disruption of traffic in the construction area will be minimized to the extent possible. Although complete control of all construction-related inconveniences is not possible, motorist and pedestrian safety will be ensured by signage in all construction areas. Access will be maintained to properties adjacent to construction to the extent possible. A construction plan will be developed to include measures to reduce access impacts. Preliminary detour routes for the Recommended Alternative will be included in the FEIS. These routes will be refined based on the final construction staging plan selected by MDOT.

7.14 Continuance of Public Utility Service

Water, sanitary sewer, gas, telephone, and electrical transmission lines adjacent to or crossed by the project may require relocation or adjustment. If this should be the case, coordination between MDOT and the affected utility company will take place during design, and relocation will take place prior to construction of the road, if possible. The contractor will coordinate construction activities with the affected utility company.

Service to portions of the project area may be temporarily interrupted during the adjustment period. For the most part, the effects of this work will go unnoticed.

7.15 Construction Noise Levels and Vibration Impacts

Construction noise will be minimized by implementation of measures such as requiring that construction equipment have mufflers, that portable compressors meet federal noise-level standards, and that all portable equipment be placed away from or shielded from sensitive noise receptors if at all possible. All local ordinances will be adhered to.

Where pavement must be fractured or structures must be removed, care will be taken to prevent vibration damage to adjacent structures. In areas where construction-related vibration is anticipated, basement surveys will be conducted before construction begins to document any damage caused by highway construction. Special consideration would be give to historic structures.

7.16 Control of Air Pollution During Construction

The contractor must comply with all federal, state, and local laws and regulations governing the control of air pollution.

During construction of the project, the contractor will be responsible for adequate dust-control measures so as not to cause detriment to the safety, health, welfare, or comfort of any person, or cause damage to any property or business.

All bituminous and Portland cement concrete proportioning plants and crushers must meet the requirements of the rules of the Michigan Air Pollution Control Commission. For any portable bituminous or concrete plant or crusher, the contractor must apply for a permit-to-install from the Permit Section of the Air Quality Division of MDNR. This permit-to-install should be applied for a minimum of 30 calendar days prior to installation of the plant for plants with an active MDNR permit or 60 calendar days for plants not previously permitted in Michigan. For proposed plant sites in Wayne County, the contractor should apply directly to the Wayne County Air Pollution Control Division.

Dust collectors will be provided on all bituminous and concrete proportioning plants. Dry, fine aggregate material removed from the dryer exhaust by the dust collector will be returned to the dryer discharge unless otherwise directed by the project engineer.

7.17 Additional Mitigation or Modifications

The final mitigation package for the project will be reviewed by division representatives on the MDOT study team, in cooperation with concerned state, federal, and local agencies. Some changes in the early mitigation concepts discussed in this document may be required when design begins or when in-depth soil borings are made and analyzed. These mitigation concepts will be implemented to the extent possible. Where changes are necessary, they will be designed and reviewed in the field before permits are applied for and construction begins. Changes may also be necessary during the construction phase, but they will reflect the early mitigation intent.

The preceding mitigation concepts are based on the best information available through March 2000.